# Ryan Chouest Data Summary Deepwater Horizon Oil Spill Cruise 6/28/2010

Review Date 6/29/2010

## **Summary:**

This sampling report presents data collected from the Ryan Chouest for the period of 6/28/2010. The Ryan Chouest sailed on the cruise track shown in Figure 1. This cruise track deviated from that originally planned due to strong swells and currents.

## Science results and preliminary interpretation:

All three fluorometry sensors show consistent results over the cruise track shown in Figures 2-4. A relatively large portion of the Contros sensor data on the western end of the route had to be deleted due to poor data quality. Fluorometry sensor responses are generally in agreement with the potential oiling footprint for the previous day with medium inferred hydrocarbon concentrations cover the broad zone of oiling extent over the ship's track.

Sea surface oil slick observations include relatively dense patches of orange mousse, sometimes with orange pancakes. Brown oil was also observed. The Chelsea and Contros fluorometry data increase slightly in the regions where orange pancake mousses and brown oil were observed.

#### Planned versus actual route taken for Cruise 5:

# Ryan Chouest Cruise 5 Route Status

(06/27/2010 1321CDT - 06/28/2010 1318 CDT) 88°30'0"W 88°0'0"W 87°30'0"W 87°0'0"W 86°0'0"W 86°30'0"W 85°30'0"W Alabama -31°0'0"N 31°0'0"N-Mobile ICP Florida Theodore 30°30'0"N -30°30'0"N Mississippi (S)Pascagoula **Orange Beach** Panama City Dauphin Island -30°0'0"N 30°0'0"N 29°30'0"N--29°30'0"N -29°0'0"N 29°0'0"N Legend Deepwater Horizon Tracks (through 06/28 - 1318 CDT) Cruise 5 Planned Route Potential Oiling Extent 0627 28°30'0"N 28°30'0"N-88°30'0"W 88°0'0"W 87°30'0"W 87°0'0"W 86°30'0"W 86°0'0"W 85°30'0"W

**Figure 1:** Planned versus actual route course plotted between 06/27/2010 –06/28/2010. Purple shaded area represents outline extent of the slick from 06/27 ERMA composite.

Note: 175.333 NM covered between 06/27/2010 1321CDT

and 06/28/2010 1318 CDT

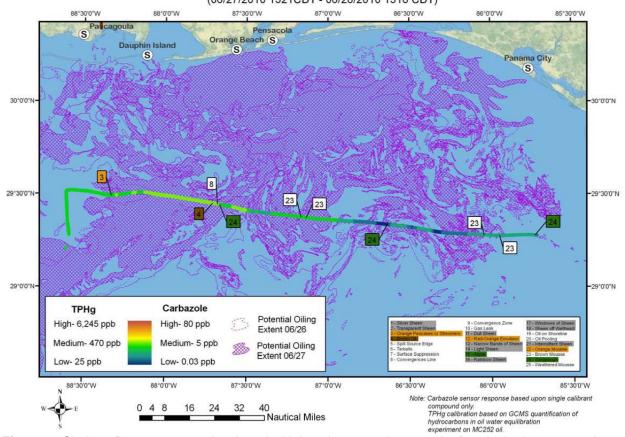
## **Vessel Science Operations:**

□ Nautical Miles

0 5 10 20 30

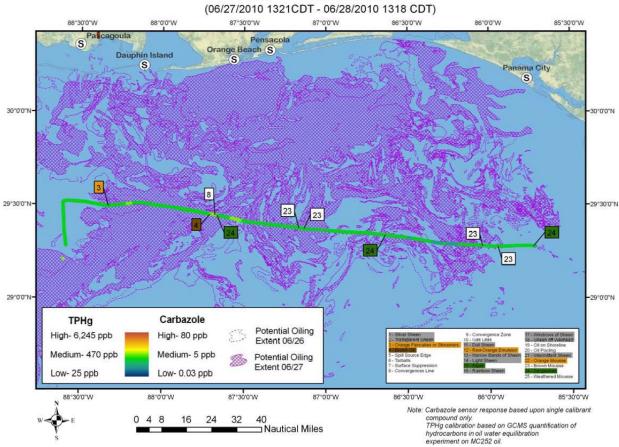
Fluorometer measurements were logged and observations of sea-surface conditions were made throughout the majority of the period. Water and surface samples were taken during the 24 hour period when features of interest were encountered, particularly in the region of dense orange mousse. They continue to perform liquid-liquid extractions on seawater samples/mousses and analyze the extracted material by GCMS.

### Ryan Chouest Cruise 5 Data Chelsea - Fluorometer (06/27/2010 1321CDT - 06/28/2010 1318 CDT)



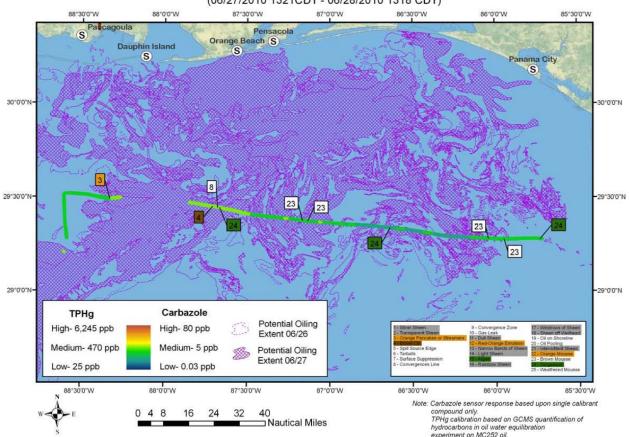
**Figure 2:** Chelsea fluorometer results plotted with location on cruise 5 track. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems.

# Ryan Chouest Cruise 5 Data Trios - Fluorometer



**Figure 3:** Trios fluorometer results plotted with location on cruise 5 track. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems.

#### Ryan Chouest Cruise 5 Data Contros - Fluorometer (06/27/2010 1321CDT - 06/28/2010 1318 CDT)



**Figure 4:** Contros fluorometer results plotted with location on cruise 5 track. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems.

#### **Problems/Operational Issues:**

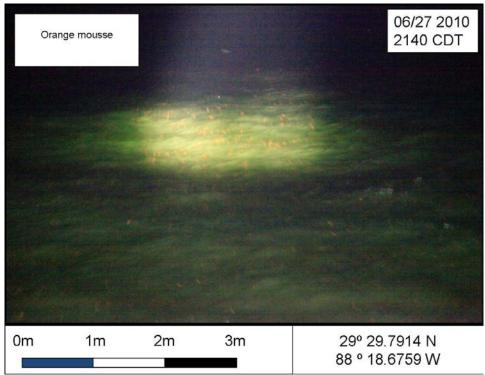
The second submersible pump that was used for the underway fluorometer system failed due to hose detachment, followed by power cable shearing. It was noted that the pump was not working at ~1700 hours on 6/28, and upon further inspection, the hose and pump wire were separated from the pump-hose assembly. They have been experiencing strong currents and swells, which may have placed extra pressure on the towed pump. It is possible that the strengthening waves and swells would have made further sampling difficult because they are towed only one to two meters below the surface.

#### Planned activities for next 24 hours:

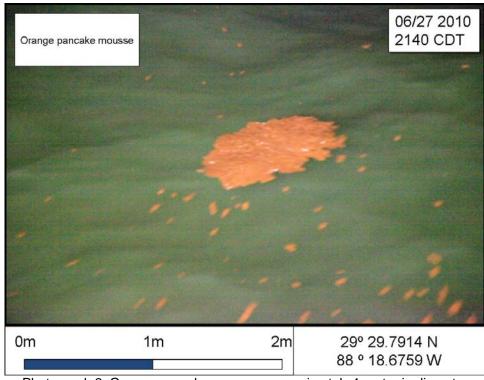
The Ryan Chouest is sailing back to port due to two failed submersible pumps. They should arrive to the sea buoy by 0900 hours. Tuesday will be spent fixing the job crane to perform vertical casts and testing the pumps so that systems are ready and in place before Cruise 6.

# **Photographs**

The following photographs were included in the Ryan Chouest's daily report:



Photograph 1. Region of dense orange mousse patches



Photograph 2. Orange pancake mousse, approximately 1 meter in diameter